

REMARKS

In the non-final Office Action dated June 6, 2005, the Examiner objects to the drawings under 37 CFR § 1.83(a) for allegedly failing to include every feature of the claims; objects to claim 7 for including an informality; objects to claim 13 under 35 CFR § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim; rejects claims 1-15, and 20-22 under 35 U.S.C., § 112, first paragraph, for failing to comply with the written description requirement; rejects claims 8-13 under 35 U.S.C. § 112, second paragraph, for being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention; rejects claims 1, 5, 6, and 14 under 35 U.S.C. § 102(e) as being anticipated by IVERSON et al. (U.S. Patent No. 6,052,379); rejects claims 2, 3, 7-11, 13, and 15-22 under 35 U.S.C. § 103(a) as being unpatentable over IVERSON et al. in view of HO (U.S. Patent No. 6,862,270); rejects claim 4 under 35 U.S.C. § 103(a) as being unpatentable over IVERSON et al. in view of Applicants' allegedly admitted prior art; and rejects claim 12 as being unpatentable over IVERSON et al. in view of HO and further in view of CHIRUVOLU (U.S. Patent No. 6,839,321).

By way of this amendment, Applicants amend a portion of the specification and claims 1, 8-11, 13, 14, and 16-22 to improve form. No new matter has been added by way of the present amendment. Claims 1 - 22 remain pending in the present application. Reconsideration and allowance of all claims in view of the following remarks is respectfully requested.

Objections to the Drawings

Initially, the drawings were objected to the Examiner under 37 CFR § 1.83(a) for allegedly failing to include every feature of the claims. More particularly, the Examiner indicates that the drawings fail to show “determining, when a policy is to be applied to the traffic, if a size of the traffic exceeds a number of tokens in the first bucket, the first bucket being associated with the policy”, as recited in Applicants’ claim 20 (Office Action, pg. 2). Applicants respectfully disagree.

As clearly shown in Fig. 2, steps 206 and 208, it is determined whether a policy should be applied to a received packet (step 206, as described at pg. 7, lines 25-30). If a policy is to be applied, the process continues to step 208, where it is determined whether the size of the received packet exceeds the balance of the maximum bandwidth bucket (Max BW Bucket) associated with the policy (see description at pg. 8, lines 3-5). It is unclear what portion of the recited claim element the Examiner believes is missing from the Figures. Regardless, Applicants respectfully submit that each and every feature of the claims is shown in the Figures, as required by 37 CFR § 1.83(a). Reconsideration and withdrawal of the drawing objection are respectfully requested.

Claim Objections

Claim 7 is objected to for including an informality. More particularly, the Examiner indicates that the phrase “based on IP address” should read “based on an IP address.” (Office Action, pg. 3) Applicants respectfully disagree. As recited in claim 7, “IP address” refers to one exemplary criteria for screening the traffic policy of claim 5. If Applicants were to modify the language, to recite “an IP address”, the claim could be misinterpreted to require a specific IP

address for screening.

Claim 13 is objected to under 37 C.F.R. § 1.75(c), for allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim (Office Action, pg. 3). The dependency of claim 13 has been amended to reference claim 5, rather than previous claim 7. Accordingly, claim 13 is believed to further limit the subject matter of claim 5. Reconsideration and withdrawal of the claim objection are respectfully requested.

Claim Rejections under 35. U.S.C. § 112, first paragraph

Claims 1-15 and 20-22 stand rejected under 35 U.S.C. § 112, first paragraph for allegedly failing to comply with the written description requirement. In particular, the Examiner indicated that independent claims 1, 14, and 15 (as well as dependent claims 2-13) are rejected for including the term “borrowing” which was not specifically described in the specification as known as the act of “borrowing.” (Office Action, pg. 4). Applicants respectfully disagree.

Applicants submit that the concept of bandwidth borrowing or sharing is specifically described and supported in the application as originally filed in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. As described in the specification, guaranteed bandwidth bucket 130b is configured as a token bucket capable of receiving tokens at a predetermined rate (the sustained information ration or SIR for the policy) associated with the guaranteed bandwidth allocation for the policy (see specification, pg. 6, lines 21-23). As a packet is processed, it is determined whether sufficient tokens exist in the guaranteed bandwidth bucket 130b to enable passing of the packet to the output queue (specification, pg. 6, lines 23-

28). If enough tokens are present, the packet is passed to the output queue and the commensurate number of tokens are decremented from the guaranteed bandwidth bucket 130b (specification, pg. 5, lines 26-28). However, if enough tokens are not present, the guaranteed bandwidth bucket 130b attempts to borrow tokens from the shared bandwidth bucket 130c (specification, pg. 6, lines 29-30). As specifically described, shared bandwidth bucket 103c has tokens added to it every time that one of the guaranteed bandwidth buckets 130b has reached its peak allocation (see specification, pg. 7, lines 1-3). For example, a guaranteed bandwidth bucket 130b may be capable of storing 10 tokens for use in passing packets. Once 10 tokens have been received into the guaranteed bandwidth bucket 130b and not used (i.e., not decremented following the passing of packets to the output queue), any additional received tokens are added to the shared bandwidth bucket 130c (specification, pg. 7, lines 3-5). Recall that tokens are received by guaranteed bandwidth bucket 130b periodically based upon the policy's SIR (sustained information rate).

Once it is determined that sufficient tokens do not exist in guaranteed bandwidth bucket 130b to enable passing of the packet to the output queue, it is determined whether sufficient tokens are in the shared bandwidth bucket 130c to enable passage of the packet (specification, pg. 7, 10-13). If so, the guaranteed bandwidth bucket 130b may be "borrow" the number of tokens necessary from the shared bandwidth bucket 130c to enable to passage of the packet (specification, pg. 7, lines 14-17). Because shared bandwidth bucket 130c is replenished by guaranteed bandwidth bucket 130b in the manner described above, the concept of "borrowing" is clearly supported. In view of the above remarks, reconsideration and withdrawal of the pending rejection of claims 1-15 are respectfully requested.

Regarding claim 15, the Examiner further indicated that the application fails to adequately describe “a scheduler operable to evaluate a packet to determine if a traffic shaping policy should be applied to a given packet” in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully disagree.

The application as originally filed clearly describes the manner in which a packet is evaluated (i.e., “screened”) to determine if a policy is to be applied. In particular, at pg. 7, line 25 - pg. 8, line 1, the specification recites:

“...a policy screen includes one or more policy parameters. The policy parameter defines the screening parameters for the policy. An example of a policy parameter is the packet’s IP address. Packets can be screened based on destination, source or both. In addition, traffic can be screened based upon protocol type, UDP/TCP [sic] port number, type of service and traffic content, such as websites.”

Clearly, such a recitation provides support sufficient to enable one skilled in the art to evaluate received packets to determine whether a policy should be applied thereto. In view of the above remarks, reconsideration and withdrawal of the pending rejection to claim 15 are respectfully requested.

Regarding claims 20-22, the Examiner indicated that the language “determining, when a policy is to be applied to the traffic, if a size of the traffic exceeds a number of tokens in the first bucket, the first bucket being associated with the policy” fails to be properly described in the specification. Applicants respectfully disagree.

It would appear, based upon a careful reading of the Examiner’s rejection, that the Examiner has misinterpreted the recited language of claim 20. As is evident by Applicant’s usage of commas within the claim, the phrase “when a policy is to be applied to the traffic”

reflects **when** (e.g., a point in time) the act of determining if a size of the traffic a number of tokens in the first bucket is performed. This feature is clearly supported by the specification. In view of the above, reconsideration and withdrawal of the rejection of claims 20-22 are respectfully requested.

Claim Rejections under 35. U.S.C. § 112, second paragraph

Claims 8-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. More particularly, the Examiner indicates that various elements in claims 8-13 lack sufficient antecedent basis. Accordingly, claims 8-13 have been amended to correct the noted deficiencies.

Regarding claim 11, the Examiner additionally indicates that the abbreviation UPD/TCP is ambiguous. Applicants respectfully submit that the acronym “UPD” as presented in the application is a typographical error for “UDP” or “user datagram protocol”, which is a well known network protocol, similar to the TCP or “transmission control protocol” used to route datagrams over IP (internet protocol) networks. Accordingly, Applicants have amended the specification and claim 11 to correct this typographical error.

In view of the above amendments and remarks, reconsideration and withdrawal of the rejections of claims 8-13 are respectfully requested.

Claim Rejections under 35. U.S.C. § 102

Claims 1, 5, 6, and 14 stand rejected under 35 U.S.C. § 102(a) as allegedly anticipated by

IVERSON et al. Applicants respectfully traverse.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987).

Independent claim 1, for example, recites a method for allocating bandwidth in a network appliance, where the network appliance includes a plurality of guaranteed bandwidth buckets used to evaluate when to pass traffic through the network appliance. The method includes providing a shared bandwidth bucket associated with a plurality of the guaranteed bandwidth buckets; allocating bandwidth to the shared bandwidth bucket based on the underutilization of bandwidth in the plurality of guaranteed bandwidth buckets; and sharing excess bandwidth developed from the underutilization of the guaranteed bandwidth allocated to the individual guaranteed bandwidth buckets including borrowing bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance. IVERSON et al. does not disclose this combination of features.

For example, IVERSON et al. does not disclose or suggest providing a shared bandwidth bucket associated with a plurality of the guaranteed bandwidth buckets. The Examiner relies on col. 17, line 56 – col. 18, line 19 of IVERSON et al. for allegedly disclosing this feature (Office Action, pg. 2). Applicants disagree.

At col. 17, line 56 – col. 18, line 19 of IVERSON et al. discloses:

If the BpCSum is positive, the port was requesting bandwidth at a rate below the $CIR+B_c$ for at least the last measurement interval. If the BpCSum is zero, port bandwidth requests have been substantially equal to the $CIR+B_c$ for the port. If the water level in CSum is negative (below the midpoint), the rate that the port has been using bandwidth is above $CIR+B_c$. If the port has accumulated any excess bandwidth credit by transmitting below CIR for some amount of time, this bandwidth credit will be used if the water level in the first bucket goes below zero.

BpESum is the water level value in the second bucket 404 and represents the current accumulated value of unused bandwidth in excess of $CIR+B_c$ (i.e. past overflows from the first bucket 402). The ESum bucket 404 represents a cache of excess bandwidth that the user 62 can save up to be used for longer periods of high transmission demand.

Every measurement interval the quantum of bits 400 are added to the first bucket 402. Any overflow of bandwidth above the limit of the first bucket 402 is added to the ESum bucket 404.

Both buckets are "leaky" in that the amount of traffic transmitted in the past measurement interval leaks out of the appropriate bucket based on the previous priority level. The current water level of each bucket is then the result of adding in the Committed Information Rate (CIR) bit quantum for the last measurement interval and subtracting the amount of outgoing traffic 409 actually transmitted in the last measurement interval, T1Out. The water level of bucket 402 determines a priority value in a high priority band 403. The water level of bucket 404 determines a priority value in a low priority band 405.

This section of IVERSON et al. discloses a leaky bucket priority scheme, wherein excess bandwidth credits for first bucket 402 are added to the ESum bucket 404. The excess bandwidth stored in bucket 404 is then used when the level of the first bucket 402 drops below zero. This section of IVERSON et al. does not disclose providing a shared bandwidth bucket associated with a **plurality** of guaranteed bandwidth buckets, as recited in claim 1. Even assuming arguendo that IVERSON et al. disclose a shared bandwidth bucket associated with a guaranteed bandwidth bucket, this association appears to be a one-to-one association, resulting in bandwidth overages from bucket 402 being applied to bucket 404 for subsequent use when the level of

bucket 402 drops below zero. Contrary to this disclosure, claim 1 recites a shared bandwidth bucket being associated with a plurality of guaranteed bandwidth buckets. By associating multiple guaranteed bandwidth buckets with a shared bandwidth bucket, traffic resources may be more optimally distributed. Clearly, IVERSON et al. fails to disclose each and every element of claim 1, as required under 35 U.S.C. § 102.

For at least the foregoing reasons, Applicants submit that claim 1 is patentable over IVERSON et al.

Claims 5 and 6 depend from claim 1. Therefore, these claims are patentable over IVERSON et al. for at least the reasons given above with respect to claim 1.

Independent claim 14 recites features similar to features recited above with respect to claim 1. Therefore, this claim is patentable over IVERSON et al. for at least reasons similar to reasons given above with respect to claim 1. Moreover, this claim recites defining a guaranteed bandwidth allocation for a first policy for passing traffic through the network appliance including using a first bucket to allocate the guaranteed bandwidth and defining a guaranteed bandwidth allocation for a second policy for passing traffic through the network appliance including using a second bucket to allocate the guaranteed bandwidth. Furthermore, claim 14 recites borrowing bandwidth from the shared bandwidth bucket by one of the first and second buckets when the respective bucket has insufficient bandwidth to allow traffic to pass immediately through the network appliance. IVERSON et al. does not disclose or suggest these features. The Examiner does not address these features in the Office Action. Therefore, a *prima facie* case of obviousness has not been established with respect to claim 14.

For at least the foregoing reasons, Applicants submit that claim 14 is patentable over

IVERSON et al.

Claim Rejections under 35. U.S.C. § 103

Claims 2, 3, 7-11, 13, and 15-22 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over IVERSON et al. in view of HO. Applicants respectfully traverse.

In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 USPQ 459 (1966). The Examiner is also required to explain how and why one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

In establishing the requisite motivation, it has been consistently held that the requisite motivation to support the conclusion of obviousness is not an abstract concept, but must stem from the prior art as a whole to impel one having ordinary skill in the art to modify a reference or to combine references with a reasonable expectation of successfully achieving some particular realistic objective. See, for example, Interconnect Planning Corp. v. Feil, 227 USPQ 543 (Fed. Cir. 1985). Consistent legal precedent admonishes against the indiscriminate combination of prior art references. Carella v. Starlight Archery, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985).

Claims 2, 3, 7-11, and 13 depend from claim 1. The disclosure of HO does not cure the deficiency in the disclosure of IVERSON et al. identified above, with respect to claim 1.

Therefore, claims 2, 3, 7-11, and 13 are patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Independent claim 15 recites features similar to features recited above with respect to claim 1. The disclosure of HO does not cure the deficiency in the disclosure of IVERSON et al. identified above, with respect to claim 1. Therefore, claim 15 is patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination, for at least reasons similar to reasons given above with respect to claim 1.

For at least the foregoing reasons, Applicants submit that claim 15 is patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination.

Independent claim 16, as amended, recites a network device including a first bucket configured to receive tokens at a first information rate; a second bucket configured to receive tokens at a second information rate; a third bucket configured to receive extra tokens from the second bucket; and a scheduler configured to: determine if a size of traffic received at the network device exceeds a number of tokens stored in the first bucket, determine, when the size of the traffic does not exceed the number of tokens stored in the first bucket, if a size of the traffic exceeds a number of tokens stored in the second bucket, and transfer, when the size of the traffic exceeds the number of tokens stored in the second bucket, an appropriate number of tokens from the third bucket to the second bucket so that the second bucket includes a number of tokens that equals or exceeds the size of the traffic. IVERSON et al. and HO do not disclose or suggest this

combination of features recited in claim 16, either alone or in any reasonable combination.

For example, neither IVERSON et al. or HO disclose or suggest a first bucket configured to receive tokens at a first information rate; a second bucket configured to receive tokens at a second information rate; and a third bucket configured to receive extra tokens from the second bucket. Therefore, claim 16 is patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination.

Claims 17-19 depend from claim 16. Therefore, claims 17-19 are patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 16.

Independent claim 20, as amended, recites features similar to features recited above with respect to claim 16. Therefore, this claim is patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination, for reasons similar to reasons given above with respect to claim 16.

Claims 21 and 22 depend from claim 20. Therefore, these claims are patentable over IVERSON et al. and HO, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 20.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over IVERSON et al. in view of Applicants' allegedly admitted prior art. Applicants respectfully traverse.

Claim 4 depends from claim 1. The disclosure of Applicants' allegedly admitted prior art does not remedy the deficiencies in the disclosure of IVERSON et al. set forth above with respect to claim 1. Therefore, claim 4 is patentable over IVERSON et al. and Applicants'

admitted prior art, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over IVERSON et al. in view of CHIRUVOLU. Applicants respectfully traverse.

Claim 12 depends from claim 1. The disclosure of CHIRUVOLU does not remedy the deficiencies in the disclosure of IVERSON et al. set forth above with respect to claim 1. Therefore, claim 4 is patentable over IVERSON et al. and CHIRUVOLU, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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